

## TITLE OF THE INVENTION

[1] Be it known that I, Paul Gait, a citizen of Canada, residing at 4960 Onondaga Road, Syracuse, NY 13215; have invented a new and useful "Lacrosse Head Having Convex Sidewalls."

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## BACKGROUND OF THE INVENTION

[3] The present invention relates generally to an implement used for playing lacrosse and more particularly, to a lacrosse head having convex sidewalls.

[4] It will be appreciated by those of ordinary skill in the art that lacrosse is a fast growing sport. It will further be appreciated by those of ordinary skill in the art that lacrosse heads are essential to playing the game. A head is a basket that attaches to the end of a handle. The lacrosse head is usually molded from duPont Xytel brand nylon. The lacrosse head has an open or upper side for catching and discharging the ball and a lower side to which a net or pocket is attached for holding a ball. A lacrosse head has a throat section having a socket for receiving a handle and a ball stop. To the ball stop there is attached a pair of sidewalls. The

sidewalls are joined distal from the ball stop by a lip or scoop. Traditionally the sidewalls have been substantially vertical and flat.

[5] In the game of lacrosse, the head is used to catch the ball, hold the ball, and pass or shoot the ball. To this end there have been several attempts to form the sidewalls and the ball stop area to improve a lacrosse head's ability to perform these essential features.

[6] U.S. Patent No. 5,568,925 discloses a shoulder portion below the ball stop that creates an angular recess or step. This shoulder retains the ball. However, some people believe that the shoulder holds the ball too well and illegally impedes the ball from rolling out of the head. Further, a ball dynamically contacting the shoulder will do so on either a flat portion or an edge. Dynamic contact with the flat portion does not direct the ball into the net or pocket. Dynamic contact with the edge causes the ball to act in a less controllable and less predictable manner. Further, the shoulder prevents the ball from rolling consistent along the sidewall from the top to the bottom or the bottom to the top. From the bottom to the top, the shoulder holds the ball until the head reaches a certain angle at which point the ball cannot be controllably rolled.

[7] Some players desire a lacrosse head that is narrower at the opening than at the pocket area such as lacrosse head disclosed in U.S. 5,651,549. Other players desire a lacrosse head where the open side of the lacrosse head is larger than the net side of the lacrosse head such as the lacrosse head disclosed in U.S.

Patent Nos. 6,066,056 and 6,561,932. The '932 Patent also discloses a recessed ball stop that creates an angular shoulder along the lower side. However, this angular shoulder causes some people to believe that the shoulder holds the ball too well and illegally impedes the ball from rolling out of the head. Further, a ball dynamically contacting the shoulder will do so on either a flat portion or an edge. Dynamic contact with the flat portion does not direct the ball into the net or pocket. Dynamic contact with the edge causes the ball to act in a less controllable and less predictable manner. Further, the '932 Patent discloses sidewalls that are essentially vertically-flat until they curved outwardly between the middle and upper portion thereby creating a substantially flat section in the middle to lower portion. When the ball dynamically contacts this flat portion, the ball is directed toward the opposite sidewall. Also, the '932 sidewall is not convex. Instead, the ball rolling from the bottom of the sidewall to the top would be hung up by the shoulder instead of the controllable roll of a more consistent wall surface.

[8]           What is needed, then, is a lacrosse head that has a convex sidewall that creates a large opening on top and on bottom but is narrower in the middle so as to provide a wide catching area and holding area but a narrowed intermediate area. This needed head must have sidewalls that provide a consistent or gradual change in direction without ninety degree angles that retain prevent the ball from rolling in a controllable manner. This need head should also have a rounded ball stop from the upper portion to the lower portion to allow the ball to be more easily

held in the pocket and to direct a ball bouncing against the ball stop into the pocket. This needed lacrosse head should also be larger at the upper or open portion than at the middle portion to better catch the ball. This needed lacrosse head should also be larger at the lower or net portion than at the middle portion to better retain the ball. This needed lacrosse head should have rounded or convex sidewalls that allow dynamic contact with the ball to be more controlled and predictable. This need lacrosse head should minimize flat portions and acute angular portions to direct the ball in the desired direction in a controllable and predictable manner. This lacrosse head is presently lacking in the prior art.

#### BRIEF SUMMARY OF THE INVENTION

[9] The present invention discloses a lacrosse head having a throat joining a pair of side walls. The side walls are then joined to a scoop or lip distal from the throat. The lacrosse head has inner edges and outer edges. The throat has a socket on the outer edge for receiving a handle and a ball stop on the inner edge for receiving the ball. The lacrosse head has an upper or open portion and a lower or net receiving portion. In between the upper and lower portions, there is a middle portion. The lower portion of the ball stop is curved toward the socket or in a manner that make the lower portion of the ball stop larger than the upper portion of the ball stop to better retain the ball. Further, the sidewalls are convex so that the area or perimeter of the upper and lower portions of the head at desired locations is

larger than the middle portion. The sidewalls have a consistent or gradual change in surface relative to the inner edge of the lacrosse head to allow the ball rolling from top to bottom to do so in a controlled manner.

[10] Accordingly, one object of the present invention is to provide a lacrosse head having a curved ball stop to better retain the ball.

[11] Another object of the present invention is to provide convex sidewalls that are large on the open side to catch the ball.

[12] Another object of the present invention is to provide a head that having a smaller area in the middle when viewed from the side to better retain the ball.

[13] Another object of the present invention is to provide a head having in which the lower portion of the sidewalls create an area larger than the middle portion to better retain the ball by creating a profile that causes the ball to be directed toward the pocket if the ball dynamically contacts the sidewall below the middle portion.

[14] Another object of the present invention is to provide a lacrosse head in having convex sidewalls and/or ball stop so that dynamic contact with the ball causes the ball to act in a more controlled and predictable manner.

[15] Another object of the present invention is to minimize the sharp angles and flat portions of the sidewalls to better control the ball.

[16] Another object of the present invention is to provide sidewalls that change in a gradual or consistent manner free of acute angles that allows a ball rolling from top to bottom or bottom to top along the sidewalls to be better controlled and predictable.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[17] Fig. 1 is a side view the first embodiment of the present invention.

[18] Fig. 2 is a perspective view of the first embodiment of the present invention.

[19] Fig. 3 is a cutaway view showing the preferred embodiment of the convex sidewall shape of the present invention.

[20] Fig. 4 is a cutaway view showing another preferred embodiment of the convex sidewall shape of the present invention.

[21] Fig. 5 is a cutaway view showing another preferred embodiment of the convex sidewall shape of the present invention.

[22] Fig. 6 is a cutaway view showing another preferred embodiment of the convex sidewall shape of the present invention.

[23] Fig. 7 is a cutaway view showing another preferred embodiment of the convex sidewall shape of the present invention.

[24] Fig. 8 is a cutaway view showing another preferred embodiment of the convex sidewall shape of the present invention.

[25] Fig. 9 is a cutaway view showing another preferred embodiment of the convex sidewall shape of the present invention.

[26] Fig. 10 is a cutaway view showing another preferred embodiment of the convex sidewall shape of the present invention.

[27] Fig. 11 is a cutaway view showing another preferred embodiment of the convex sidewall shape of the present invention.

[28] Fig. 12 is a cutaway view showing another preferred embodiment of the convex sidewall shape of the present invention.

#### DETAILED DESCRIPTION OF THE INVENTION

[29] Referring now to Figs. 1-3 there is shown generally at 10, the preferred embodiment of the lacrosse head of the present invention. Lacrosse head 10 has throat 12 joined to a pair of side walls 14. Scoop 16 is joined to side walls 14 distal from throat 12. Throat 12 consists of socket 22 for receiving a handle 100 and ball stop 24. Lacrosse head 10 is provided with inner edge 18 and outer edge 20. Lacrosse head 10 has upper or open portion 26 and lower or net receiving portion 28. Between upper portion 26 and lower portion 28 is middle portion 30. In a first preferred embodiment, ball stop 24 is curved at least at lower portion 28 in a direction generally toward socket 22 or in a manner that the perimeter of ball stop 24 is larger at lower portion 28 than middle portion 30 and/or upper portion 26. In

this manner, the curvature of ball stop 24 will hold ball 102 better than if a traditional ball stop was used. However, the curvature will not unnaturally and illegally impede the ball as would occur in the lacrosse head disclosed in U.S. Patent No. 5,568,925. Further, the curvature of ball stop 24 in this embodiment allows the ball to bounce off the rounded ball stop 24 in a much more controlled and predictable manner than with the shoulder of the '925 Patent. Although in the preferred embodiment ball stop is curved in lower portion 28, multiple obtuse angles can be used to create the gradual transition. Additionally, as the ball 102 travels from the lower portion 28 to the upper portion 26 through the middle portion 30, there is no acute angle to impede the movement of the ball 102.

[30] Referring again to Figs. 1-3 there is shown generally at 10, the preferred embodiment of the lacrosse head of the present invention. Lacrosse head 10 has throat 12 joined to a pair of side walls 14. Scoop 16 is joined to side walls 14 distal from throat 12. Throat 12 consists of socket 22 for receiving a handle 100 and ball stop 24. Lacrosse head 10 is provided with inner edge 18 and outer edge 20. Lacrosse head 10 has upper or open portion 26 and lower or net receiving portion 28. Between upper portion 26 and lower portion 28 is middle portion 30. In a first preferred embodiment, at least a portion of sidewalls 14 are curved convexedly or hyperbolically toward the center of the head from upper portion 26 inwardly until middle portion 30 is reached and the outwardly along lower portion 28 or in a manner that the perimeter of upper portion 26 and lower portion 28 than middle



portion 30. In this manner, the curvature of sidewalls 14 will hold ball 102 better than if a traditional sidewall is used. However, the curvature will not unnaturally and illegally impede the ball. Further, the curvature of sidewalls 14 in this embodiment allows the ball to bounce off the rounded sidewalls 14 in a much more controlled and predictable manner that with the recessed shoulder of the '932 Patent. Although in the preferred embodiment sidewalls 14 are is curved, multiple obtuse angles can be used to create the gradual transition.

[31] As a result of the orientation of the sidewalls 14 shown in Figs 1-3, the area or perimeter of the lacrosse head 10 at the upper portion 26 is larger than at the middle portion 30. Likewise, the area or perimeter of the lacrosse head 10 at the lower portion 28 is larger than at the middle portion 30. Stated another way, the distance between the sidewalls 14 where the sidewalls are curved between the upper portion 26 and the lower portion 28 is greater than at the middle portion 30. Further, the curvature provides no angled portions creating an unpredictable bounce.

[32] In the preferred embodiment, the sidewalls are curved along the entire length of sidewalls 14. However, the curvature may be placed along any portion of sidewalls 14 and even ball stop 24. Further, in the preferred embodiment, the lacrosse head is narrowest closer to the middle. However, the narrowest point can be above or below the exact middle. Preferably, the radius of the sidewall is constant from top to bottom. However, the radius of curvature can vary from top to

bottom. Further, the radius of curvature can vary between ball stop 24 and scoop16.

[33] In the preferred embodiment, the radius of curvature is 1.25 inches where the sidewall is two inches. However, an inconsistent curvature may be used. Further, the degree of curvature may vary along the length of sidewalls 14. Where the sidewall is shorter, the radius of curvature is also smaller.

[34] Referring now to Fig. 4 there is shown generally at 10 another embodiment of the lacrosse head of the present invention. In this embodiment, the area of smallest perimeter is closer to the upper portion 26 than lower portion 28.

[35] Referring now to Fig. 5 there is shown generally at 10 another embodiment of the lacrosse head of the present invention. In this embodiment, the area of smallest perimeter is created by an obtuse angle placed in the middle portion between the upper portion 26 than lower portion 28. Although not curved, the sidewall of Fig 5 allows the ball to roll in a controlled manner from the lower portion 28 to the upper portion 26.

[36] Referring now to Fig. 6 there is shown generally at 10 another embodiment of the lacrosse head of the present invention. In this embodiment, the area of smallest perimeter is in middle portion 30 closer to the lower portion 28 than to upper portion 26.

[37] Referring now to Fig. 7 there is shown generally at 10 another embodiment of the lacrosse head of the present invention. In this embodiment, the area of smallest

perimeter created by an obtuse angle in middle portion 30 closer to the upper portion 26 than lower portion 28.

[38] Referring now to Fig. 8 there is shown generally at 10 another embodiment of the lacrosse head of the present invention. In this embodiment, the area of smallest perimeter created by an obtuse angle in middle portion 30 closer to the lower portion 28 than the upper portion 26.

[39] Referring now to Figs. 9 and 10, there is shown generally at 10, other embodiments of the present invention showing a lacrosse head in which the holding area of the head 10 is larger than the catching area by providing non-linear sidewalls. This orientation can also be used in place of the curvature of the ball stop shown in Fig.1. In Fig. 9, the sidewall 14 travels away from inner edge 18 from upper or open portion 26 through middle portion 30 to a much wider lower or net portion 28 in a gradual manner. In Fig. 10, the sidewall 14 travels away from inner edge 18 from upper or open portion 26 through an obtuse angle in middle portion 30 to a much wider lower or net portion 28.

[40] Referring now to Fig. 11 there is shown generally at 10 another embodiment of the lacrosse head of the present invention. In this embodiment, the area of smallest perimeter created by obtuse angles in the upper portion 26, in the middle portion 30, and in the lower portion 28.

[41] Referring now to Fig. 12 there is shown generally at 10 another embodiment of the lacrosse head of the present invention. In this embodiment, the area of

smallest perimeter created by obtuse angles in the upper portion 26, in the middle portion 30 (closer to the upper portion 26), and in the lower portion 28.

[42] Thus, although there have been described particular embodiments of the present invention of a new and useful Lacrosse Head Having Convex Sidewalls, it is not intended that such references be construed as limitations upon the scope of this invention except as set forth in the following claims.